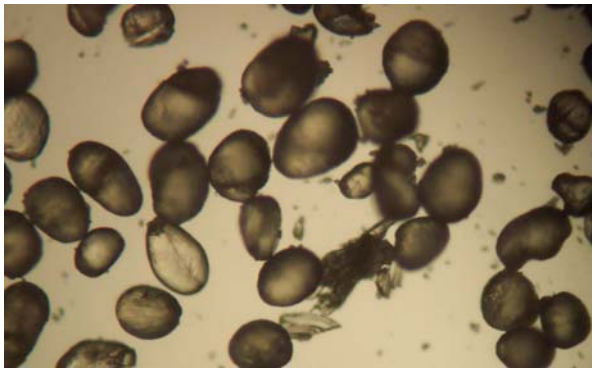
PILOT SCALE TESTING COMPLETED AND PATENT ISSUED FOR NEW PROCESS TO PRODUCE PURIFIED TEREPHTHALIC ACID (PTA)

GTC Technology, Inc., under a cooperative agreement with the DOE's Industrial Technologies Program and in collaboration with Montana State University, has completed pilot-scale testing of a new process to produce purified terephthalic acid (PTA), an important commodity chemical.

Purified terephthalic acid (PTA) is a starting material for the formation of polyester resin, which is used to make many commercial materials of many utilities such as clothing, plastic containers, and films. In the conventional production of PTA, oxidation and purification stages are carried out at high temperature and pressure, creating severe operating conditions. Bromine is used with the catalyst system for the oxidation portion of the reaction, resulting in the toxic waste release of methyl bromide. This creates an environmental problem and requires the use of expensive, corrosion-resistant materials.

The new PTA purification process uses a two-step crystallization technique and a highly selective, proprietary organic solvent blend that tolerates high levels of impurities, typical of that produced by non-bromine catalyst systems. As a result, the new process potentially eliminates use of hazardous chemicals, and could produce polyester grade material from lower purity para-xylene feedstocks. Because the new purification process operates at lower temperature and pressure, significant energy savings can be realized. Also, the new purification process essentially eliminates large water usage and subsequent wastewater treatment. Existing facilities can be easily retrofitted with the new purification technology for dramatic improvement in operating performance. Industry-wide implementation in the United States could yield energy savings of 22 trillion Btu per year.

A U.S. Patent (7307188, Purification of Carboxylic Acids by Complexation with Selective Solvents) for the process was issued to GTC Technology Inc. in December 2007. GTC is currently testing samples from the pilot plant at PET producers and is exploring commercialization options for the technology.



The new process will produce commercial grade-TA crystals (pictured), increase understanding of crystal growth mechanisms, and develop reliable predictive process control models for crystallization steps.

For more information about this project see http://www.eere.energy.gov/industry/chemicals/pdfs/pta_production.pdf

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